AMENDMENTS TO THE CLAIMS

1. (Previously Presented) In an aerial refueling system for refueling a receiver aircraft in flight from a tanker aircraft, wherein the refueling system includes a hose reel rotatably mounted on the tanker aircraft's fuselage, a hose wound around the reel, said hose having an outlet end, and a drogue affixed to said outlet end, a hose reel drive system comprising:

a variable displacement hydraulic motor having a control piston that controls displacement of the motor and is controlled by a pressure change in an electro-hydraulic control valve and having an output shaft connected to said reel;

a reaction torque sensor which measures the torque imposed on said reel through said drogue and hose;

a position sensor which detects the movement of said hose; and

a microprocessor electrically connected to said electro-hydraulic control valve, said reaction torque sensor, and said position sensor.

2-32. (Canceled)

33. (Previously Presented) The aerial refueling system of claim 1, wherein signals from the microprocessor to the electro-hydraulic control valve determine a hydraulic pressure applied to the motor in response to data from the reaction torque sensor representing a free trail drag torque prior to engagement of a receiver aircraft by the drogue and representing a net drag torque in an engagement mode when the drogue and the receiver aircraft are engaged.

34. (Previously Presented) The aerial refueling system of claim 33, wherein the net drag torque comprises a force exerted by an air stream on the drogue plus or minus a force exerted on the drogue by the receiver aircraft.

35. (Previously Presented) The aerial refueling system of claim 34, wherein the microprocessor is configured to store a determined torque difference between the free trail drag torque and the net drag torque and to send a signal to the electro-hydraulic control valve when the net drag force is greater than the determined difference.

36. (Previously Presented) In an aerial refueling system for refueling a receiver aircraft in flight from a tanker aircraft, wherein the refueling system includes a hose reel rotatably mounted on the tanker aircraft's fuselage, a hose wound around the reel, said hose having an outlet end, and a drogue affixed to said outlet end, a hose reel drive system comprising:

a variable displacement hydraulic motor having an electro-hydraulic control valve and having an output shaft connected to said reel;

a reaction torque sensor which measures the torque imposed on said reel through said drogue and hose;

a position sensor which detects the movement of said hose; and

a microprocessor electrically connected to said electro-hydraulic control valve, said reaction torque sensor, and said position sensor,

wherein the variable displacement hydraulic motor is configured to act as a pump to rotate the reel in one direction and as a motor to rotate the reel in an opposite direction.

37. (Previously Presented) In an aerial refueling system for refueling a receiver aircraft in flight from a tanker aircraft, wherein the refueling system includes a hose reel rotatably mounted on the tanker aircraft's fuselage, a hose wound around the reel, said hose having an outlet end, and a drogue affixed to said outlet end, a hose reel drive system comprising:

a variable displacement hydraulic motor having an electro-hydraulic control valve and having an output shaft connected to said reel;

a reaction torque sensor which measures the torque imposed on said reel through said drogue and hose;

a position sensor which detects the movement of said hose; and

a microprocessor electrically connected to said electro-hydraulic control valve, said reaction torque sensor, and said position sensor,

wherein said microprocessor contains instructions to direct the motor to provide driving torque to rotate the reel in a first direction and resistance torque to rotate the reel in a different second direction.